

1. A device for grouping articles to be loaded into a carton and delivered to the device from an infeed stream at an infeed end of a packaging machine, which device comprises leading and trailing spacer elements arranged to move along a first predetermined path, each of said spacer elements being adapted to engage at least one article from the infeed stream and to convey the articles through a working reach of the device, and adjustment means to adjust the device between a first mode in which said each spacer element follows said first predetermined path to successively engage an article group and a second mode in which said trailing spacer element follows said first predetermined path and said leading spacer element becomes transferred from said first predetermined path to follow a second predetermined path connected to said first predetermined path before rejoining said first predetermined path whereby said leading and trailing spacer elements engage an article group simultaneously.
2. A device as claimed in claim 1 wherein said each spacer element comprises a body portion and an engagement portion releasably secured to said body portion, said body portion being slidably mounted in a transverse direction to a spacer element conveyor.
3. A device as claimed in claim 2 wherein said first predetermined path is provided by a first cam track, and a cam follower projects from an underside of said body portion of said each spacer element.
4. A device as claimed in claim 3 wherein said second predetermined path is provided by a second cam track, said adjustment means comprises a blocking element at the entrance of said second cam track, said blocking element is moveable between a blocking position in said first mode to prevent said cam followers of the leading and trailing spacer elements from following said second cam track and a second position that allows the cam follower of the leading spacer element to follow said second cam track and prevents the trailing spacer element from following the same path.

5. A device as claimed in claim 4 wherein said cam follower of said leading spacer element is shorter than said cam follower of said trailing spacer element.
- 5 6. A device as claimed in claim 5 wherein said blocking element is raised to said blocking position and lowered to said second position by drive means controlled by a controller.
7. A device as claimed in claim 6 wherein said controller comprises a central
10 processor for controlling an article conveyor, the speed and position of said spacer elements and said adjustment means.
8. A device as claimed in claim 4 further comprising a second blocking element to block an exit of said second cam track.
- 15 9. A device as claimed in claim 8 wherein said second blocking element is controlled by a controller to move between a blocking position and a second position.
10. A device as claimed in claim 1 wherein the speed of said spacer elements along
20 the working reach is alterable as required depending on the number of articles in each article group and/or the mode of operation.
11. A packaging machine having an article infeed, a carton loading station and a device as claimed in claim 1 for grouping the articles to be loaded into the cartons.
- 25 12. A method of grouping articles delivered from an infeed stream of a packaging machine, said method comprising engaging successive articles with leading and trailing spacer elements from the infeed stream so that said articles are located relative to one another during feed movement of said articles so that one group of said articles is

advanced with respect to and thereby spaced from a next succeeding group of said articles while said leading and trailing spacer elements move along a feed path of said articles, said method further comprising the step prior to feeding said articles to a carton of adjusting the device between a first mode in which each of said leading and trailing
5 spacer elements follows a first path to successively engage an article group and a second mode in which said trailing spacer element follows said first path and said leading spacer element becomes transferred from said first path to follow a second path connected to said first path before rejoining said first path whereby said leading and trailing spacer elements engage an article group simultaneously.

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13. A controller for controlling the operation of an article grouping device as claimed in claim 1, said controller controlling said adjustment means to select one of said first and second predetermined paths for said leading and trailing spacer elements and the velocity of one or more of an article feeder, a spacer element conveyor and/or a carton feeder to
15 control movement through the packaging machine.